CLAIM AMENDMENTS

1.   (currently amended) A method of deterministically generating maximal nonlinear block substitution tables for a predetermined block size, comprising:

selecting a first generating function;

selecting a second generating function;

selecting first and second sets of complete linearly independent numbers;

calculating first and second linear orthomorphisms from the generating functions and the sets of linearly independent numbers; [[and]]

creating a maximal nonlinear block substitution table[[s]] by combining the linear orthomorphisms, the block substitution tables for use in; and

encrypting a clear text message[[s]] utilizing the block substation table.

2.   (original) The method of claim 1, wherein selecting a first generating function includes selecting a first primitive generating function.

3.   (canceled)

4.   (original) The method of claim 1, wherein selecting a second generating function includes selecting a second primitive generating function.

5-6.   (canceled)

7.   (original) The method of claim 1, wherein calculating first and second linear orthomorphisms includes calculating first and second maximal linear orthomorphisms from the generating functions and the sets of linearly independent numbers.

8.   (original) The method of claim 1, further comprising rotating the second linear orthomorphism.

9.   (original) The method of claim 8, wherein rotating the second linear orthomorphism includes rotating corresponding cycles of the second linear orthomorphism.

10.   (original) The method of claim 1, wherein selecting a second generating function includes selecting a second generating function which is a complement of the first generating function.

11.   (canceled)

12.   (original) The method of claim 1, wherein selecting first and second sets of linearly independent numbers includes selecting a second set of linearly independent numbers that is identical to the first set of linearly independent numbers.

13.   (original) The method of claim 1, wherein selecting first and second sets of linearly independent numbers includes selecting a second set of linearly independent numbers that is not identical to the first set of linearly independent numbers.

14-15.   (Canceled)

16.   (currently amended) A computer-implemented method for deterministically generating maximal nonlinear block substitution tables from binary data, comprising:

selecting a first set of a plurality of complete linearly independent numbers from the binary data;

selecting a second set of a plurality of complete linearly independent numbers from the binary data;

generating a plurality of linear orthomorphisms using first and second recursive generating functions and the first and second sets of linearly independent numbers; [[and]]

setting [[the]] a maximal nonlinear substitution table[[s]] based on a combination of the linear orthomorphisms, the substitution tables for use in; and

encrypting a clear text message[[s]] utilizing the substation table, wherein the clear text message is [[which are]] in the form of a sequence of binary numbers.

17.   (original) The method of claim 16, wherein the second generating function is a complement of the first generating function.

18-19.   (canceled)

20.   (previously presented) A system, comprising:

a communications link;

a first computer in communication with the communications link; and

a second computer in communications with the communications link, the second computer having an ordered set of data and instructions stored thereon which, when executed by the second computer, cause the second computer to perform the steps of:

selecting a first generating function;

selecting a second generating function;

selecting first and second sets of complete linearly independent numbers;

calculating first and second linear orthomorphisms from the generating functions and the sets of linearly independent numbers; and

creating maximal nonlinear block substitution tables by combining the linear orthomorphisms, the block substitution tables for use in encrypting clear text messages.

21.   (currently amended) A computer-readable medium having stored thereon instructions which, when executed by a processor, cause the processor to perform the steps of:

selecting a first generating function;

selecting a second generating function;

selecting first and second sets of complete linearly independent numbers;

calculating first and second linear orthomorphisms from the generating functions and the sets of linearly independent numbers; [[and]]

creating a maximal nonlinear block substitution table[[s]] by combining the linear orthomorphisms, the block substitution tables for use in; and

encrypting a clear text message[[s]] utilizing the block substitution table.

22.   (canceled)

23.   (new) A computer system for deterministically generating maximal nonlinear block substitution tables for a predetermined block size, the system comprising a computer, wherein the computer is configured to perform the steps of:

selecting a first generating function;

selecting a second generating function;

selecting first and second sets of complete linearly independent numbers;

calculating first and second linear orthomorphisms from the generating functions and the sets of linearly independent numbers; and

creating a maximal nonlinear block substitution table by combining the linear

orthomorphisms, the block substitution tables for use in encrypting a clear text

message.